



FACTS about Hanford

Hydrogen in Hanford's Waste Storage Tanks

Hydrogen is generated in many of Hanford's nuclear waste storage tanks but it is created in significant amounts in only some. Although hydrogen is flammable, this has not been a concern. Hanford scientists have studied the issue for many years and took steps to ensure that hydrogen did not concentrate to cause a danger. Although the issue has been studied for many years, a recent review by a Westinghouse Hanford engineer raised some unanswered questions.

Until recently the attention of Hanford scientists was focused on the collection of gas at the top of the tank. The Hanford engineers considered the potential of bubbles forming and being trapped in the waste itself. Their review suggested that flammable concentrations of gases might be formed and could accumulate. They thought the issue needed further study. One tank in particular, 101-SY, shows the largest accumulation of trapped gas.

Historical Activity inside 101-SY

- ☐ Hydrogen generation rate inside 101-SY has been fairly constant for more than 10 years.
- ☐ Exhaust gas samples have shown only one instance where hydrogen concentrations may have reached the point of being flammable.
- ☐ Numerous hydrogen burning event scenarios have been considered by scientists over the years but the combination of hydrogen and other gases under the waste crust was not previously recognized.
- ☐ The volume of gas trapped beneath the crust is believed to be equal to the distance the crust drops following each venting episode -- from three to nine inches.
- ☐ Each venting event occurs about every 8 to 10 weeks.

More Information is Needed

- ☐ Scientists recognize the need to analyze and understand the nature of the crust and the slurry beneath the crust.

- ☐ Gas samples are being taken from the tank and additional waste samples are being planned.
- ☐ More sensitive instrumentation is being installed to monitor gas releases.
- ☐ Scientists need to determine the rate of hydrogen generation and how it gets through or around the crust.
- ☐ A full safety analysis will be prepared on the hydrogen generation inside the tank.
- ☐ Based on the knowledge gained, scientists will re-evaluate the plans for safely and permanently disposing of these wastes.
- ☐ A team of outside investigators concluded that there is a potential that trapped gases may be combustible but the probability is low. They also concluded the worst credible accident might damage the primary steel tank wall but not the secondary steel tank or the reinforced concrete vault.

Who is Working on the Problem?

- ☐ A safety task team has been appointed by Westinghouse Hanford Company to analyze the situation and prepare the action plan to resolve the problem.
- ☐ An independent review team has been created by the Department of Energy to assist Westinghouse Hanford scientists.
- ☐ The Defense Nuclear Facility Safety Board is reviewing the situation.
- ☐ Additional outside experts are being consulted by Westinghouse Hanford Company as needed.
- ☐ A technical review panel for the State of Washington is overseeing all these reviews.

